

WHAT IS CLAIMED IS:

1. A scanning exposure method comprising the steps of:

moving a mask and a substrate in synchronization with respect to a region irradiated with an exposing light;

projecting a divided pattern of the mask on the substrate; and

joining and exposing a plurality of divided patterns adjacent on the substrate, wherein the divided patterns adjacent in a synchronous moving direction of the substrate partially overlap each other.

2. The scanning exposure method according to claim 1, wherein during irradiation with the exposing light, in an overlapping part of the divided patterns adjacent in the synchronous moving direction, switching is carried out between irradiation for exposing the divided pattern of the mask on the substrate, and shielding for preventing exposure.

3. The scanning exposure method according to claim 2, wherein when the overlapping part is arranged ahead in the synchronous moving direction of the divided pattern, the exposing light is not shielded when the overlapping part is positioned in the irradiation region during synchronous movement with respect to the divided pattern, and when the overlapping part is arranged behind in the synchronous moving direction of the divided pattern, the exposing light is blocked when the overlapping part is positioned in the irradiation region during the synchronous movement with respect to the divided pattern.

4. The scanning exposure method according to claim 1, wherein among the irradiation regions, a plurality of adjacent irradiation regions are arrayed in parallel by partially overlapping each other in a direction orthogonal to the synchronous moving

direction.

5. The scanning exposure method according to claim 1, wherein the synchronous moving directions of the divided patterns adjacent in the synchronous moving direction are set in the same direction.

6. The scanning exposure method according to claim 1, wherein after the divided patterns adjacent in the synchronous moving direction are exposed, the mask and the substrate are moved in a direction orthogonal to the synchronous moving direction, and the divided patterns adjacent in the orthogonal direction partially overlap each other.

7. The scanning exposure method according to claim 1, wherein the mask has a joining mark near the adjacent divided patterns and, by using the joining mark, a succeeding divided pattern is joined to a preceding divided pattern.

8. The scanning exposure method according to claim 1, wherein the order of exposing the plurality of divided patterns is decided based on a moving distance of the mask from an exposure end position of a preceding divided pattern to an exposure start position of a succeeding divided pattern.

9. A scanning exposure system which moves a mask stage holding a mask and a substrate stage holding a substrate in synchronization with respect to a region irradiated with an exposing light, and joins and exposes a plurality of divided patterns adjacent on the substrate, comprising:

a light-shielding device which blocks/releases the exposing light; and
a control unit which controls the mask stage, the substrate stage and the light-shielding device by changing a light-shielding state of the irradiation region during synchronous movement to partially overlap the divided patterns adjacent in a

synchronous moving direction of the stages with each other.

10. The scanning exposure system according to claim 9, wherein among the irradiation regions, a plurality of adjacent irradiation regions are arrayed in parallel by partially overlapping in a direction orthogonal to the synchronous moving direction, and a light-shielding device is provided for each of the plurality of irradiation regions.

11. The scanning exposure system according to claim 9, wherein an overlap width in the synchronous moving direction of partially overlapping adjacent divided patterns is substantially equal to a width of the irradiation region along the synchronous moving direction.

12. A scanning exposure method comprising the steps of:
moving a mask having first and second patterns, and a substrate in synchronization; and
exposing the first and second patterns on the substrate,
wherein when the first and second patterns are exposed along a synchronous moving direction of the substrate, a part of the first pattern and a part of the second pattern overlap and are exposed, and a synchronous moving speed of the mask and the substrate when there is overlapping exposure is set different from a synchronous moving speed of the same when there is no overlapping exposure.

13. The scanning exposure method according to claim 12, wherein the first pattern and a third pattern adjacent to the first in a direction orthogonal to the synchronous moving direction on the substrate have pluralities of unit patterns arrayed in different predetermined directions, and when the first and third patterns are exposed, the patterns overlap each other in a direction different from the arraying direction of the unit patterns.

14. A scanning exposure method comprising the steps of:
moving a mask having a pattern, and a substrate with respect to a region
illuminated with an exposing light in synchronization; and
exposing the pattern on the substrate,
wherein a size of the illumination region in a direction different from a
synchronous moving direction of the substrate is changed during synchronous
movement.

15. The scanning exposure method according to claim 14, wherein the size of
the illumination region is changed a plurality of times during the synchronous
movement.

16. A scanning exposure system which moves a mask having a pattern and a
substrate in synchronization, and exposes the pattern on the substrate, comprising:
an illumination region setting device which sets an illumination region of the
mask; and
a changing device which changes a size of the illumination region in a direction
different from a synchronous moving direction of the substrate during synchronous
movement .

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